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ABSTRACT

The role of professional and local-personal networks as a source of knowledge development in the new knowledge-based economy was examined in a 15-month study that focuses on people working in the multimedia industry in Montreal, Quebec. The study focused on the modes of exchange and learning, collaborative work, and management and development of knowledge within firms through exchanges between workers. Of the approximately 50 firms contacted, 18 agreed to participate in the study. Sixty open-ended interviews (48 with workers and 12 with employers or managers) were conducted. The interview responses were analyzed within the contexts of the concepts of collective competence and communities of practice. The interviews established that collaborative work, teamwork, and knowledge sharing have become normal in multimedia firms. The perceptions and values of the workers interviewed appeared to counter those of the traditional tayloristic vision of work, which assumes a strong division of labor and little if any exchange between workers. Most interviewees were ready to share information, often without expecting anything in return, and most enjoyed teamwork. Many firms used capacity to work in a group as a selection criterion when hiring employees. The managers reported looking for complementary specializations within teams. (Contains 46 references.) (MN)

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New Learning Models for the New Knowledge-Based Economy: Professional and Local-Personal Networks as a Source of Knowledge Development in the Multimedia Sector

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New Learning Models for the New Knowledge-Based Economy:
Professional and Local-Personal Networks as a source of Knowledge Development in the Multimedia Sector

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1. Introduction

Over the last few decades, Canada as many other countries has found itself in a context characterized by increasing globalization of production and exchange of goods, services and capital, as well as by the spread of the knowledge-based economy (OECD, 1996; Foray and Lundvall, 1995; Soete, 1996; Storper, 1995; or the "new economy" as some scholars call it, e.g. Beck, 1992) and by persistently high unemployment (reaching chronic proportions in Quebec and several other provinces) (Tremblay, 1997). The Knowledge Economy implies a redefinition of the economic sectors and a far-reaching transformation of the labour market, particularly in terms of job mobility and career development (CST, 1998; Christensen, 1989). It is clear that careers are increasingly fragmented, with people having to move through a number of projects, jobs and firms during their lifetime. This constitutes a considerable challenge for adult learning, since learning used to be provided by the firm within internal labour markets. Now, especially in sectors such as multimedia, characterized by extreme mobility between firms, but also by a need for permanent learning, the challenge for firms to ensure learning of their employees, and for workers to ensure their own has become quite important. In our view, these new careers, described by some as "nomadic" (Cadin, 1998; Arthur, Claman and De Fillippi, 1995; De Fillippi and Arthur, 1998; Hendry and Jenkins, 1997; Hendry, Arthur and Jones, 1995) and by others as "discontinuous" (Tremblay, 1997), threaten to increase labour market dualism or segmentation, thereby increasing the risks of crisis or fragmentation of social cohesion because of the difficulty of some to learn (Castel, 1995, Bidet and Texier, 1995, de Coninck, 1995, Fitoussi and Rosanvallon, 1996). This new reality also obliges us to review our visions of learning and to question the modalities by which adults learn in the new economic sectors characterised by mobility and nomadic behaviour.

Over the last 15 months, we have conducted a research focusing on people working in the multimedia industry (in particular in the Cité du Multimédia in Montreal, but also outside of the Cité). We wanted to look at telelearning models used in the firms as well as the role of professional and local networks in the development of knowledge of individuals, in a way similar to works on community of practices. Although we contacted some 50 firms, and some 18 accepted to participate in the research and give some of managers and workers' time for this purpose, we found only one case where there was some software which could be envisaged close to a telelearning device. This will therefore not be the center of this paper, since the study of telelearning is still underway, but outside of the multimedia sector, with 2 large firms in the ICT and telecom industry. However, we found interesting elements in our research concerning the

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way people work and learn in the multimedia sector and we thing these findings reflect the changing coutours of learning in many knowledge based sectors. We would add that the modes of learning are changing partly because the modes of work and the types of careers in this sector also present new characteristics and it is on this that we will insist here : the new modes of collective work or teamwork, and the way people learn in this context.

Our paper will describe the new modes of work, and the new visions of learning that were presented to us by workers in the multimedia sector, but also by their employers, who must preoccupy themselves with the preservation of the competitive advantage of their firm, through continuous learning.

We will also develop here the concept of collective competencies, which appears quite useful to understand what is happening in this sector, with the new types of careers that are unfolding before our eyes. As will be seen, collective competencies refer to a new way in which we can envision the development of competencies and learning in the knowledge economy characterized by nomadic or boundaryless careers and mobility. We will come back to these elements in the coming pages.

2. Objectives and methodology

Our interest is in the modes of exchange and learning, collaborative work, management and development of knowledge within the firm through exchanges between workers. We mainly asked questions on the modes of work and collaboration, but as well on the elements that were learned in this context. We will not insist much on the latter element, but rather on the modes of work and learning, which are of more interest in this conference. We also had about a third of the questionnaire on the careers and mobility of individuals, since we wanted to determine if mobility was as frequent as indicated by popular press and general information or research on the multimedia sector, since this would have an important impact on how people learn and the mobility implied by boundaryless or nomadic careers also has important consequences for planning and designing modes of learning (or of telelearning) in a sector where continuous learning is said to be a necessity, for workers as well as for firms (under the reference to the learning organization paradigm). In our work on nomadic careers, we refer to the works of Cadin et al. (2000), De fillippi and Jones (see references), and used some elements of a questionnaire developed by Cadin et al.

We also did some theoretical research on the concept of collective competencies and the way it is viewed by different authors. We will mainly use here the works of Le Boterf (1994) , as well as some elements of Rabasse (1994), who in our view builds on elements developed by the first author.

Let us mention the methodological dimensions. We contacted some 50 firms and 18 accepted to participate in the research. In these 18 firms, we did interviews with workers (web page designers, project leaders, web technicians, etc. , the terminology for jobs not being very clear in many firms…), as well as interviews with 12 employers or managers of these firms. Most of these firms are small so there is not a strong division of labour and most employers or managers do not restrict themselves to administrative tasks. Nevertheless, they are the ones who plan

projects, who plan for the future of the firm, for future developments, and thus, for the learning of their personnel in order for them to be able to fulfill the tasks requested of them and to be able to adapt over time to new tasks, new projects, new methodologies, and new technologies.

In each of the firms, we interviewed 3 to 4 workers, except for 2 cases, where we only interviewed one person, in one case because it was an extremely small firm (2 persons), and another because internal problems made it impossible to pursue with the research in that firm. All of the interviews lasted about an hour an a half, the minimum being an hour, and the maximum 2 hours. The interviews were based on a semi-directive interview guide, with many open questions, but also some more closed questions. Workers were questioned on their past employment or labour market experience, the type of work they did, what they had learned in previous employment, how they learned in the present and previous jobs, the types of interactions with coworkers, and considering the importance of teamwork and collaborative work in these firms, they were asked to develop on various dimensions related to teamwork and their appreciation of it, since this appears to be the main mode of development of competencies.

3. The concept of collective competencies

The Knowledge Economy has important impacts on the ways in which we envisage the development of cometencies, especially in « project based » sectors such as the multimedia sector, that are also confronted with high mobility of nomadic employees (Tremblay et Amherdt, 2001). In these sectors based on projects, the intelligence of the firm is based on the quality of the « networks of competencies » that constitute this firm and not on the individual capabilities of workers (Le Boterf, 1994, p. 140).

In such a context, individuals develop their competencies and the industry develops its competencies through a network. Also, collective efficiency of the firm depends largely on its capacity to bring together different types of know-hows, or in Le Boterf's words : « la qualification et l'efficacité collective de l'entreprise dépendent largement de sa capacité à mettre en commun des savoir-faire différents, à gérer la complexité et l'hétérogénéité du savoir qui y est distribué » (Le Boterf, 1994, p.140).

Other works similar subjects (for ex. : Charrier and Kouliche, 1994; Katzenback and Smith, 1994, Petit et al., 1999; Audebert-Lasrochas, 1999) indicate that the team (group, project structure and the like) seems to be at the center of action, much more than the individual. The collective dimension seems to be imposing itself in management science as well as in other works on similar issues as a fundamental mode of organized action or of intelligent action. One of the contributions which best illustrates this passage from individual to collective seems to be that of Deming (1986). Deming is strongly critical of the tyranny of individual short term performances, and highlights the fact the work flows that are the result of transversal interspecialty teams, that go beyond hierarchies and functional specialties that are typical of large firms, are the way of the future.

It thus seems essential to look at the concept of collective action and of collective competencies. Le Boterf (1994) also highlights the importance of putting together different types of specialties

or of knowledge, and it seems that Rabasse agrees on this, but few have really tested this hypothesis, so we included it in our object of research.

At this point, let us give a brief definition of the concept of collective competencies (from Rabasse, 1998):
Collective competencies refer to the implementation of a new type of management based on the interactivity of multiple players, both employees and managers. It generates new collective behaviours and exchanges that help develop collective competencies as well as new ways of cooperating between the individuals of a firm (eventually beyond the individual firm, within a network of firms or of people).These new collective behaviours, exchanges and forms of cooperation contribute in developing what can be called collective competencies.

To complete, another definition can be given :

> «*L'ensemble des savoir-agir (hard/soft skills and competences) qui émergent d'une équipe de travail, combinant des ressources endogènes de chacun des membres, des ressources exogènes de chacun des membres, et créant des compétences nouvelles issues de combinaisons synergiques de ressources*» (Amherdt, Dupuich-Rabasse, Emery & Giauque, 2000: 31*).*

It is important to note that competencies have generally been studied in an individuel context, referring to the competencies or capabilities of the individual, those needed for a specific job and the like. In our view, this was appropriate in a context where internal labour markets dominated, and even more so in a context of closed internal labour markets (Tremblay, 1997), but in the diversity of present working contexts and with the development of various new forms of work organization, employment systems have evolved tremendously and particularly so in firms of the Knowledge economy characterized by boundaryless careers (Tremblay and Rolland, 1998; Tremblay and Amherdt, 2000; Arthur and Rousseau, 1996, Cadin et al. 1999).

The concept of competence is particularly important in the context of boundaryless careers as in much work on new forms of management. While traditional visions or tayloristic visions of work organization used to be centered on the job description and on a strong division of labour, the concept of competencies is preferred in a context of new high performance work organizations (Betcherman et al. 1994; Lowe and Shellenberg, 2001; Tremblay and Rolland, 1998).

4. Research Results

Let us first mention that our work has permitted us to conclude that the multimedia workers can indeed be classified as boundaryless workers (De Fillippi and Arthur, 1996) for the majority of them. Some are maybe somewhat more linked to the « craft » (or « métier » in French) and they don't all go through the situation of independant worker (especially in the context of high demand of the last years), but if they are not typical boundaryless workers, they are in the parent categories or « frontaliers » or « itinerants » presented by Cadin et al. (2000). In all cases mobility is very important in their trajectory, and many have done a certain number of jobs, although the majority are quite young, except for the employers or managers, sometimes somewhat older, but rarely over 40.

Let us now turn to the results observed concering the modes of development of knowledge and competencies, collaborative work, as well as what we have called collective competencies, following Le Boterf (1994) and other followers of his work.

We have grouped in a few themes, based on the questionnaire, the presentation of results from our 60 interviews in the 18 firms; each of the elements we have chosen to present here (which only represents about one third of the material collected) refers to one or two specific questions which were asked in the interview, and usually with the terms mentioned in the subtitle.

1) Teamwork : do you work alone or with others ?

We know the importance given to collaborative work in new theories on learning, as well as in some human resources management theories, mainly those to do with the learning organization or the introduction of new technologies. We therefore wanted to know if people actually did work with others, and whether this was the case most of the time or not.

If we start here with the managers or employers (12 out of the 60 interviews), they say they usually work with others, except on very specific tasks.

In the case of employees, certain specific tasks bring them to work alone, but the work is usually done in teams, and responsibilities are shared in teams in general. There is much interaction between the workers, even if there is some division of labour between them.

The employees usually find teamwork « easy, useful and pleasant ». They like to work with others, even if some say it is not always easy. Many will say that teamwork is essential, that it helps you go faster, and lose less time.

In fact, the capacity to work in a group seems to constitute a selection criteria for many firms when they are hiring, but more importantly or newer, it also has become a selection criteria for workers who are looking for the « good job » as well as for project managers who want their projects to go forward smoothly. « One rotten apple in the basket », as we all know, can lead to many others, and therefore to difficulties in a project.

2) Feeling that they are working towards a common goal with colleagues, that there is a good team spirit, and that interactions and exchanges are valued by the employer

Unanimously, managers as well as employees say they have the feeling of working towards a common goal with their colleagues, although some do mention that it is not always an easy thing !

In one case, we found a rather traditional and hierarchical mode of information management, from top-down. While some pretend that the Knowledge economy is based only on project teams, with no hierarchy whatsoever, we see it is not always the case, even in some small firms.

Unanimously, managers and employees consider that there is a good cohesion in the different groups which they are a part of. Some firms have installed ping pong tables or billiard tables,

apparently to create personal ties between employees that go beyond the professional relations. In another paper, we refer to this type of knowledge as « knowing whom » , following Cadin et al. (2000) as well as Miles and Snow (1996). This is seen as favouring a better working environment, as well as fostering exchanges, communication and cross-learning between the different persons.

Clearly, the team spirit is essential to all and we might even speak of a form of « camaraderie », which to many is important as one of the main criteria of a « good job ».

For managers as well as for employees, interactions and exchanges are strongly valued and employees consider that they are strongly valued and therefore encouraged by the employer. Contrarily to the traditional tayloristic view where exchanges and communication are generally viewed as a loss of time, they are seen here as contributing to a climate of openness, which will eventuallly – but not necessarily on a short term basis - contribute to learning from others and to innovative ideas through exchange of views.

Most offices are open spaces, some have internal newsletter for expression of different ideas, many of them organize social activities, etc. Clearly, we are close here to the Japanese model of management (Tremblay and Rolland, 1996, 1998), where the firm is a « family » and where workers are encouraged to participate – but mainly after office hours in the Japanese case – in various social activities, such as « drinking with the guys » (women are generally excluded from these jobs and activities !)

An interesting element in this last case, the possibility of expression seems to constitute a substitute to a higher wage. It is true that a number of works in human resources management or in sociology of work have highlighted the fact that employees more and more seek for other adavantages than the traditional wage increases and social benefits. Autonomy, responsibilization, possibility of expressing oneself, social exchanges and other similar elements seem to constitute elements of what today's employees consider a « goood job » (Lowe and Schellenberg, 2001).

Each considers that working in collaborative ways is useful and that they could not attain the same results if they were working alone. The advantages they see are numerous. The managers as well as employees often mention the transfer of information, of expertise, the learning of new competencies, the diversity of points of view, the sharing of knowledge, the stimulation that is provoked by these exchanges, and the learning that is derived by all these experiences of working with others.

A few persons mentioned inconveniences or problems related to the work sometimes being less structured in such a context, when people do not get involved as much as they should or when some are slower than others. Some consider that this can be detrimental to teamwork and to learning in a collective perspective and regret this fact, but indicate that the situation is infrequent.

3) What is a good team : a group of persons with similar competencies or different ones ?

There is some debate as to what represents a good composition for a team. Do team members need to have similar competencies or is it preferable for them to have different specializations, as is suggested by some (Rabasse, 1999) ?

The majority of our interviewees consider that there is more quality, diversity and efficiency in a team where members have different specializations. Managers look for complementary specializations within teams. They want individuals to have some basic competencies in a specific field, but also want them to be open to others, adaptable, flexible. They also like the idea of bringing together people with different views on an issue and getting them to work on a project together.

This capacity of adaptation brings to mind the japanese model of management. In the japanese management style, people are hired for their potential, their future capacities, and not on the bases of knowledge acquired. It is understood that it is up to the firm to give the more specialized training and it is expected of workers that they will continue to learn through work, within the organization.

Most agree that collective work is important for the good functioning of the firm but also for individual development (ex. confidence in oneself) and professional development, which is favoured by the diversity of experiences within a group.

While remaining prudent on this issue, since it is difficult to judge of the degree of transformation of individuals, it must be recognized that the majority believe this can have a positive effect if everyone invests time and energy in the projects at stake.

4) Advantages and risks from sharing knowledge

All consider it is important to share their knowledge, to diffuse their knowledge and they do it with great pleasure in general. If some expect nothing in return, others expect reciprocity but don't wait until that happens to start sharing. For most persons interviewed, sharing knowledge is essential. It favours the development and growth of all, individuals and the firm alike.

Most persons say there is no danger in sharing one's knowledge with others within the firm, and that it is even necessary for the functioning of the firm. Opinions vary as concerns sharing knowledge with people from other firms. Some consider there is a risk in sharing one's knowledge with others, while others see it more as an exchange which benefits all parties.

This is interesting if we consider the fact that the government of Québec created the City of Multimedia to bring firms together, hoping for possitive effects derived from proximity, somewhat along the lines of what is said of the industrial districts or of local innovation systems. The idea would be that firms and employees would benefit from sharing ideas, experiences, and that the whole district would benefit and develop from this. It seems that some people in the firms interviewed share this vision, but others don't, and some have even located themselves outside the City of Multimedia precisely in order to be outside of the competitive environment, where they fear that ideas and workers may be « stolen » from them. As we saw, there are two different attitudes along these lines : some who subscribe to the vision of the benefits of cooperation, and

some who do not. All consider it is essential within the firm, but with outside firms, opinions vary much more. The concept of the « learning region » does not seem to yet have convinced all of its validity.

5) Use of software (intranet and other knowledge sharing devices)

We initially wanted to study software and devices that could be used in the different firms in order to develop interaction and exchanges between employees, amongt other things we were particularly considering devices favouring the development of communities of practice. We expected to find many such devices and software in these multimedia firms, since we expect the high tech sector to be the main user of such instruments. Surprisingly, this was not the case. We asked some questions on this issue, but this dimension became less important compared to what we had initially thought.

Most firms have a system for information sharing (intranet usually) and the employees use email to communicate within the firm, but also with clients or homeworkers. The intranet systems are used for various objects such as management of projects, the diffusion of information and training, service to the clients or even games in some cases. Managers consider that these systems make wokr much easier since it is rapid, accessible and easy to use. However, we saw no usage that could be considered in any way moving in the direction of creating communities of practice. It may have been to early for this…since it seems that these software packages are jusst starting to be bought and used by firms, and are largely limited to large organizations, who can pay for a full time animator of the community of practice. Without full time support, it seems difficult to envisage that there could be any development of an efficient community. Our small firms of the multimedia sector have very lively communities, frequent internet and face to face exchanges, but have for the moment not developed virtual communities with the software packages for this. One firm only has something approaching, in the sense that they do try to get people to share information on project contents through the web.

For all others, it is mainly the email and intranet, but mainly for administrative management, not so much knowledge management, much less learning.

6) Definition of collective competencies

We previously presented the concept of collective competencies and we wanted to know if workers had any idea what this meant, how they could see the concept. Clearly from what is indicated above, they do function in a way that favours the development of collective competencies, according to the definitions presented (Le Boterf, 1994, Rabasse,, 1999). We wanted to see if they had heard of the concept and how they would define it. We asked an open question on this and most answered that they did not know the concept, but nevertheless gave definitions which came quite close to the meaning of the term for researchers.

« It is a core of competencies. It is to organize and work together.».
« It refers to competencies in a group and the team is competent when it works together.».

« for me it refers to organizational learning. The total of collective competencies is more than the simple addition of individual competencies. The firm benefits from new competencies, new learning»

Finally, one person synthesized the concept well, saying it « represents what a group can do, but could not be done by an individual.(« *Ce qu'un groupe peut faire et qu'un individu seul ne pourrait réaliser* »)

Conclusion

To a certain extent, this research must be seen as exploratory in nature, since the data were collected with some 60 interviews in 18 multimedia firms in Montreal. The interviews were based on open-endend questions and the respondents do not represent a representative sample in the statistical sense of the word. However, the convergence of responses leads us to conclude that we have drawn a good picture of the issues considered here; the last interviews confirmed what had been said in previous interviews, leading us to conclude that we had attained a critical level of validity.

Our data lead us to think that collaborative work, teamwork and knowledge sharing have become normal in the multimedia firms. The perceptions and values of workers in this sector seem to go counter to those of the traditional tayloristic vision of work, based on a strong division of labour and little if any exchange between workers. Here, workers consider that they lose nothing in exchanging information; on the contrary, they seem convinced that they are gaining in these exchanges, and that their « competitive advantage », to take business economics terms, can only be increased.

Our interviewees are ready to share information, often without expecting anything in return, although they consider that eveeryone – or almost – shares , and that you always end up gaining something in terms of learning.

In the traditional vision, information and knowledge are power, and most people keep the information they have access to in order to protect their source of power. In the world presented to us here, knowledge is shared and learning occurs through sharing, which corresponds to the definition of collective competencies which we put forward.

Amongst the factors favouring this knowledge sharing and the associated learning experiences, are the fact that most people seem quite confident in their knowledge, but at the same time know that the sector evolves very quickly and they all have to keep up to date. Trust is also a crucial element for this sharing to occur.

We must however remain prudent. As for continuous learning, just-in-time and other new workplace practices, the collectivist vision of collaborative work has also become a new « buzzword ». However, we did see that beyond managers, the workers of the sector, of whom very few read educational or management journals, also share this vision of work as a collective entreprise. Many of the workers in this sector are young. Is this a generation effect ? Maybe. This remains to be seen in future research.

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